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V. *Observations for determining the dip of the magnetic needle.*

Dip of the magnetic needle observed at Woolwich, and at different stations within the Arctic Circle.

In the following Table, is given a general abstract of the dip of the magnetic needle, and of the magnetic intensity, observed at different stations within the Arctic Circle, in the years 1824-25; and of those at Woolwich, both prior, and subsequent to the voyage.

The instruments employed in these observations, were those by Jones, and Dollond, already described in the Appendix to the two preceding voyages of discovery; but on this occasion, other needles were added, the whole being numbered as follows:

No. 1. A rectangular needle, 7¾ inches in length, constructed by Jones on Meyer's principle, having a light cylindrical arm at right angles to its axis, for screwing on a small brass sphere.

2. The same needle, with a sphere somewhat larger.

3. The same needle, with a still larger sphere.

4. A plain rectangular needle of the same length as the above.

5. A needle similar to No. 4, but used only for the intensity.

6. A conical needle, by Dollond, 11½ inches in length, having a moveable axis, for shifting into four different positions; used with the instrument of his construction.

7. A plain rectangular needle, of the same length as No. 6, and used in the same instrument; but employed exclusively for the intensity.

It may not be unnecessary to state, that every precaution which suggested itself was taken to insure accuracy, and that the needles were vibrated after each observation, by means of a small piece of magnetised wire, that their axis might not be injured by raising them in the Y's off the agate planes.

Each of the registered observations on the dip, were deduced from five readings of the needle, in each of its different positions.

The observations for intensity, by means of the *time* in which the needles performed one hundred vibrations in the meridian, are deduced from the mean of four hundred vibrations, obtained with the face of the instrument on each side of the vertical, and the needles reversed on their axis, in the two positions.

Date.	Time of Observation.	Latitude North.	Longitude West.	Observer.	Needle.	Temperature. Fah.		Dip of north end of Needle.	Mean Dip.	Intensity.		Remarks, &c.
						Air.	Instr^t.			Mean T. in perfor^g 100 vib.	Ratio de- duced	
1824.	h.	° ′ ″	° ′ ″			°	°	° ′	° ′	sec.		
May 5th	5 A. M.	Woolwich Common.		F.	2	+48,7	+60	70 55,94	70 9,2 N			In Mr. Christie's garden on Woolwich Common.
6	Noon			F.	4	+59	+68	70 6,46				
7	Noon			F.	5	.....	+57	....		364,67	1,00	
8	5^h 37^m P. M.			F.	1	+62½	+65	69 25,2				
June 26	10^h A. M. to 4^h P. M.	68 59 13	53 12 56	F.	4	+41½	+41½	83 2,6	82 53,66			On Boat Island, one of the Whale Fish Islands in Davis' Strait.
26	6^h to 10^h P. M.	....	....	P.	4	+42	+42	82 59,85				
27	8^h P. M. to midnight	....	....	F.	1	+44	+45	82 55,9				
28	1^h to 4^h A. M.	....	....	F.	2	+44	+44	82 36,3				
27	2^h P. M.	....	....	F.	5	.....	+44	....	....	340,35	1,148	
July 25	Noon	70 56 0	60 52 0	F.	4	+38	+38	84 10,8	84 8,68	.....	.....	On the Ice in Davis' Strait.
25	1^h to 3^h P. M.	....	....	P.	4	+42	+42½	84 6,57				
Nov. 1	10^h A. M. to 2^h P. M.	73 13 39	88 54 48	F.	4	— 6	— 6	87 42,46	87° 55′,29 Mean dip of the needle at Port Bowen = 88° 1′,23.			At Port Bowen, on the eastern side of Prince Regent's Inlet. The observations in November were partly made by candlelight; those in January wholly by candlelight, and those in April and June by daylight.
2	10^h A. M. to 3^h P. M.	....	....	F.	2	+3,2	+ 3,2	87 51,7				
3	10^h A. M. to 2^{h}½ P. M.	....	....	F.	1	+ 2	+ 2	87 57,7				
5	10^h A. M. to 6^h P. M.	....	....	F.	6	+10	+10	88 16,91				
6	10^h A. M. to 6^h P. M.	....	....	F.	6	— 4½	— 4	88 13,75				
8	10^h 20^m A. M.	....	....	F.	7	.....	—13½	....		404,94	1,296	
9 & 10	10^h A. M. to 4^h P. M.	....	....	P.	6	+ 7	+ 8	87 43,79				
11	9^h A. M. to 2^h P. M.	....	....	P.	4	+ 1	+ 8	87 51,62				
12	10^h A. M. till noon.	....	....	P.	1	—14	— 8½	87 54,94				
12	0^h 30^m to 2^h 30^m P. M.	....	....	P.	2	— 9	— 7	87 52,75				
1825. 12	3^h to 5^h P. M.	....	....	P.	3	—10	— 6	87 47,3				
Jan. 4	0^h 30^m to 4^h P. M.	....	....	P.	4	—27	—25	88 00,17	88 5,31			
5	1^h to 4^h P. M.	....	....	P.	4	—36½	—31	87 55,99				
6	11^h A. M. to 2^h 30^m P. M.	....	....	F.	4	—30	—22	88 10,96				
7	10^h A. M. to 2^h P. M.	....	....	F.	1	—35	—33	88 11,2				
7	2^h to 6^h P. M.	....	....	F.	2	—36	—25	87 40,05				
8	11^h A. M. to 3^h P. M.	....	....	F.	6	—33	—29	88 29,49				
10	11^h 45^m A. M.	....	....	F.	7	.....	—22	....	....	404,69	1,298	
April 26	11^h 30^m A. M. to 3^h P. M.	....	....	F.	4	+ 2	— 1	88 16,99	88 13,2			
26	4^h to 7^h 30^m P. M.	....	....	F.	2	+ 2	+ 1	88 12,76				
27	6^h 15^m to 8^h 30^m A. M.	....	....	F.	1	— 3	Zero	88 9,32				
June 2	9^h 20^m to 11^h 30^m A. M.	....	....	P.	4	+25	+26	88 6,86	88 8,12			
2	11^h 40^m A.M. to 1^h 30^m P.M.	....	....	P.	1	+26	+28	88 3,07				
2	1^h 50^m to 4^h P. M.	....	....	P.	2	+29	+29	88 13,8				
27	9^h 30^m A. M. to 3^h P. M.	....	....	F.	6	+47	+48	87 36,77	87 44,41			
28	Noon to 2^h P. M.	....	....	F.	4	+43	+42	87 34,17				
28	4^h to 6^h P. M.	....	....	F.	1	+43	+42	87 52,5				
28	6^h 30^m to 9^h P. M.	....	....	F.	2	+40	+41	87 54,2				
27	9^h 30^m A. M.	....	....	F.	7	.....	+47	....	....	406,50	1,286	
July 27	10^h A. M. to 1^h 30^m P. M.	73 6 17	91 19 52	P.	2	+50	+50	88 2,1	88 2,1	......	.....	On the eastern coast of North Somerset.
Aug. 13	8^h 45^m A. M. to noon.	72 46 32	91 50 30	F.	4	+42	+47	88 25,44	88 19,22			
13	0^h 20^m to 3^h 30^m P. M.	....	....	F.	2	+48	+48	88 12,68		......	.....	
13	6^h 20^m to 7^h 35^m P. M.	....	....	F.	1	+42½	+42	88 19,55				
30	8^h to 11^h A. M.	73 9 8	89 1 20	F.	4	+33	+33	88 8,25	88 8,25	......	.....	..Neill's Harbour.
Dec. 3	11^h 30^m A. M.	Woolwich Common.		F.	7	.....	+47½	....	....	461,02	1,00	In Mr. Christie's garden on Woolwich Common.
4	11^h 10^m A.M. to 2^h P.M.			F.	4	+47	+47	70 10,1	70 00,4			
4	2^h 50^m to 4^h 37^m P. M.			F.	2	+46	+46	69 54,7		......	.....	
5	1^h 30^m to 4^h 10^m P. M.			F.	1	+45	+45	69 56,5				